

State of Hawaii
DEPARTMENT OF LAND AND NATURAL RESOURCES
Engineering Division
Honolulu, Hawaii 96813

September 12, 2008

Board of Land and Natural Resources
State of Hawaii
Honolulu, Hawaii

**APPLICATION FOR A DLNR DAM SAFETY
CONSTRUCTION/ALTERATION PERMIT
PERMIT NO. 31 - LALAKEA RESERVOIR (HI00026)
DAM REMOVAL, KUKUIHAELE, HAWAII**

The Engineering Division hereby submits an application for your authorization and approval for issuance of a Dam Safety Construction/Alteration Permit for the Dam Removal of the Lalakea Reservoir to Kamehameha Schools, Pursuant to Chapter 179D Hawaii Revised Statutes and Chapter 190 Hawaii Administrative Rules.

APPLICANT:

Mr. T. Kao Duarte
Land Asset Division
Kamehameha Schools
567 S. King Street, Suite 200
Honolulu, HI 96813

LANDOWNER:

Same as applicant

SUMMARY OF REQUEST:

Application for a Dam Safety Construction/Alteration Permit to remove a portion of the dam embankment of the Lalakea Reservoir (HI00026), Kukuihaele, Hawaii, TMK: (3) 4-8-003:006. See Exhibit 1.

LOCATION: Kukuihaele, Hawaii. See Exhibit 2 and 2A.

BACKGROUND:

An application for the dam removal of the Lalakea Reservoir was filed on January 8, 2008 by the dam owner, Kamehameha Schools. The Lalakea Reservoir has been drained and the necessity of water supply for irrigation from this reservoir is no longer needed. Removing the existing structure will restore the natural drainage system.

ITEM L-4

DESCRIPTION:

The Lalakea Reservoir is located in the Hamakua district on the Island of Hawaii approximately two miles south of Kukuihaele town. The dam consists of an earthfill embankment on a silty clay foundation and was originally constructed in 1939 to store water for sugarcane irrigation. Since Hamakua Sugar Company closed down operations in 1996, there has been very little demand for water and use of the reservoir.

The existing semi-round dam embankment is about 800-ft long with a crest width ranging from 15 to 25-ft. The height of the dam is about 26-ft and the maximum impounding capacity is about 115 ac-feet.

Inflow to the reservoir is from a ditch system tunnel. Currently flow from the tunnel is being directed into a pipeline that is routed around the reservoir and connects to a temporary irrigation pipeline connection providing emergency irrigation water. The permit application includes sealing of the tunnel, but this portion of the construction will be delayed until the emergency need is removed.

The proposed project plan calls for the removal of a trapezoidal section in the embankment with a bottom width of 30-ft and a side slope of 2H:1V. The base of the removed section will be at the lowest elevation within the reservoir to be drained. The exposed slope will be stabilized by hydromulching. All runoff from this watershed will run directly into Waiuliuli Stream, see Exhibit 3.

Sediment build up in the reservoir is expected to be minimal as the dam is an offstream reservoir and any areas disturbed by the grading and reservoir base will be stabilized by hydromulching.

The downstream watershed consists of agriculture lands. Further downstream, approximately two miles, there is the small residential community of Kukuihaele. The Waiuliuli stream passes under several nonpublic, agriculture roads. See Exhibit 2A.

REMARKS:

Kamehameha Schools has been rerouting the inflows from the inflow tunnel into a pipeline that runs around the reservoir since shortly after the October 2006 earthquake to provide emergency irrigation water to other users. Kamehameha Schools and its consultants, Oceanit, Inc., have completed a basis of design, plans and requests for the approval of a dam safety construction/alteration permit.

The Department along with their consultant, Gannett Fleming, Inc., has reviewed the plans and concluded that it is sufficient for its intended purposes and staff recommends approval of the proposed removal, see Exhibit 4. The owner has been informed of the proposed terms and provided an acknowledgment, see Exhibit 5 and 6.

RECOMMENDATION: That the Board:

1. Authorize the approval and issuance of the Dam Safety Construction/Alteration Permit for this project; and
2. Direct the Chairperson to issue a dam safety permit for the dam removal of the Lalakea Reservoir (DLNR Dam Safety Construction/Alteration Permit No. 31) subject to such other terms and conditions as may be prescribed by the Chairperson to best serve the interests of the State.
3. Upon completion of the project and satisfactory acceptance by staff of the permit conditions, authorize the removal of this dam from the list of regulated dams under the Hawaii Dam Safety Program.

Respectfully submitted,



ERIC T. HIRANO
Chief Engineer

APPROVED FOR SUBMITTAL:



LAURA H. THIELEN, Chairperson

Exhibit(s):	1	Owner Permit Application
	2	Location Plan
	3	Site Plan, profile and detail drawings
	4	DLNR Consultant Review
	5	DLNR letter to Owner
	6	Owner acknowledgement

State of Hawaii
BOARD OF LAND AND NATURAL RESOURCES
Department of Land and Natural Resources
Engineering Division

APPLICATION FOR APPROVAL OF PLANS AND SPECIFICATIONS FOR CONSTRUCTION,
ENLARGEMENT, REPAIR, ALTERATION, OR REMOVAL OF A DAM

Applicant: _____ Date of Application: January 8, 2008
Name: Kaeo Duarte Firm / Company: Kamehameha Schools, Land Asset
Division _____

Mailing Address 567 South King Street, Suite 200, Honolulu, HI 96813

Telephone: 523-6200 Fax: 523-6374 Email: kaduarte@ksbe.edu

The Applicant hereby applies to the Board of Land and Natural Resources for the approval of the attached plans and specification for the decommissioning of Lalakea Dam (construction, etc.) in accordance with Chapter 179D HRS (as amended by Act 262, SLH 2006), and subject to the provisions, conditions, and limitations of the current Hawaii Administrative Rules and various DLNR dam safety guidelines.

Accompanying this application are:

(please check)

- | | |
|--|-----------------------------|
| 1. Filing fee (\$25.00) (Waived for government agencies) | <u> x </u> |
| 2. Three (3) copies of the Detailed Cost Estimate | <u> x </u> |
| 3. Three (3) copies of the Final Design Report | <u> x </u> |
| 4. Three (3) copies of the Plans | <u> x </u> |
| 5. Three (3) copies of the Specifications | <u> x </u> |
| 6. Proposed Construction Schedule | <u> x </u> |
| 7. Supporting documents: | <u> </u> |
| _____ | <u> </u> |
| _____ | <u> </u> |
| _____ | <u> </u> |

NAME OF STRUCTURE: Lalakea Reservoir Dam HI 026

DAM OR RESERVOIR LOCATION: 3.2 miles south of Kukuihaele, Hawaii Island

Island: Hawaii Tax Map Key: (3) 4-8-003:006

Attach USGS topographic map (scale 1" = 2000') and property tax map (showing location access to site, proposed work)

State Land Use District: X Agriculture Urban Rural Conservation

BRIEF DESCRIPTION OF WORK TO BE PERFORMED

Decommission the dam by excavating a 30-foot wide, 240-foot long breach in the dam.

TECHNICAL INFORMATION:

DLNR-Dam Safety-Sheet 2

1. Drainage Area 0.0561 sq. miles or 35.88 acres
2. Classification of Dam High Hazard
3. Type of Structure earth fill
4. Elevation-Area-Capacity Data:
Existing conditions

	Elevation	Surface Area (acres)	Total Storage Volume (acre-feet)
Natural Streambed	<u>The reservoir is off stream</u>		
Primary Spillway	<u>1996</u>	<u>5.79</u>	<u>90.7</u>
Secondary Spillway	<u>No secondary spillway</u>		
Top of Dam	<u>2000</u>	<u>6.69</u>	<u>115.3</u>
Design Water Level	<u>1993</u>	<u>5.24</u>	<u>74.2</u>
Invert of Drain	<u>1975</u>	<u>0</u>	<u>0.0</u>

Elevations are assumed (feet)

5. Spillway Details (Type, Dimensions, Material)
Primary: vegetated channel; 20-foot wide, 5-foot deep, 47-foot long
Secondary: none
6. Purpose of Structure currently unused but formerly used for irrigation
(water supply, irrigation, recreation, real estate development, etc.)
7. Attach rainfall and stream flow records, and flood-flow records and estimates (as accurately as may be readily obtained)

ADDITIONAL INFORMATION

1. Primary Owner Contact (if different from applicant) n/a
Owner Company or Entity: _____
Mailing Address _____
Telephone: _____ Fax: _____ Email: _____
2. Registered Hawaii Professional Engineer who prepared the plan Derrick C. Elfalan
Mailing Address 828 Fort Street Mall, Suite 600; Honolulu, HI 96813
Registration No. 5448-C
Telephone: 531-3017 Fax: 531-3177 Email: delfalan@oceanit.com
3. Registered Professional Engineer to be responsible for inspection during construction Derrick C. Elfalan
4. Contractor (If known) To be selected
Mailing Address _____
Telephone: _____ Fax: _____ Email: _____
5. List all other permits applications submitted to other governmental agencies:
NPDES

6. Anticipated effect of proposed structure on natural environment: Breaching the existing structure will restore the natural drainage system.
-

DLNR-Dam Safety-Sheet 3

7. List all other parties that have ownership or other interest on the parcels where the dam and reservoir are located and identify their interest in the property. The Owners herein listed below concur with the work proposed within this application by the applicant and by his/her signing hereto, the owner of the land extends to the Board of Land and Natural Resources, and its designated representatives, a right-of-entry onto the project site to conduct any investigations or inspections required in compliance with the provisions of Chapter 13-190, Hawaii Administrative Rules. (Submit additional copies of this sheet should there be more owners)

Owner:

Kamehameha Schools
567 South King Street
Honolulu, HI 96813

T. Kao Duarte
(Signature of Owner)

567 S. King St., Suite 200
Honolulu, HI 96813 / 100% interest
(Address / Interest in Dam or Reservoir)

(Signature of Owner)

(Address / Interest in Dam or Reservoir)

(Signature of Owner)

(Address / Interest in Dam or Reservoir)

(Signature of Owner)

(Address / Interest in Dam or Reservoir)

(Signature of Owner)

(Address / Interest in Dam or Reservoir)

I, T. Kao Duarte, the applicant, hereby certify that the information herein is true and factual to the best of my knowledge. Signing below indicates that the applicant understands that, if the permit requested is granted by the Board of Land and Natural Resources, the proposed work is to be initiated and completed within two (2) years of the approval date, unless specifically permitted in the approved permit terms and conditions.

T. Kao Duarte
(Signature of Applicant & Title)
Water Resources Manager

Date: 1-14-08

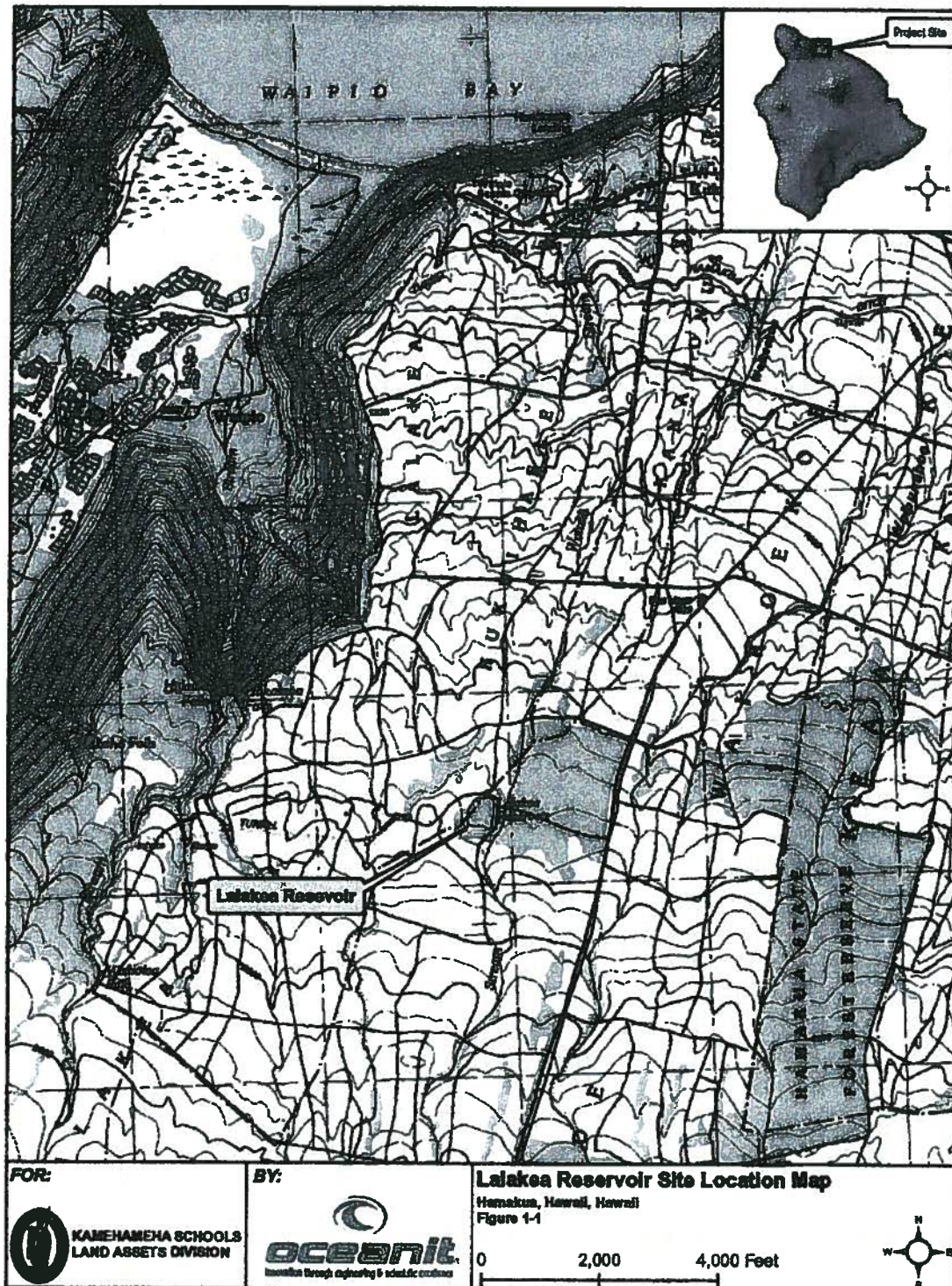
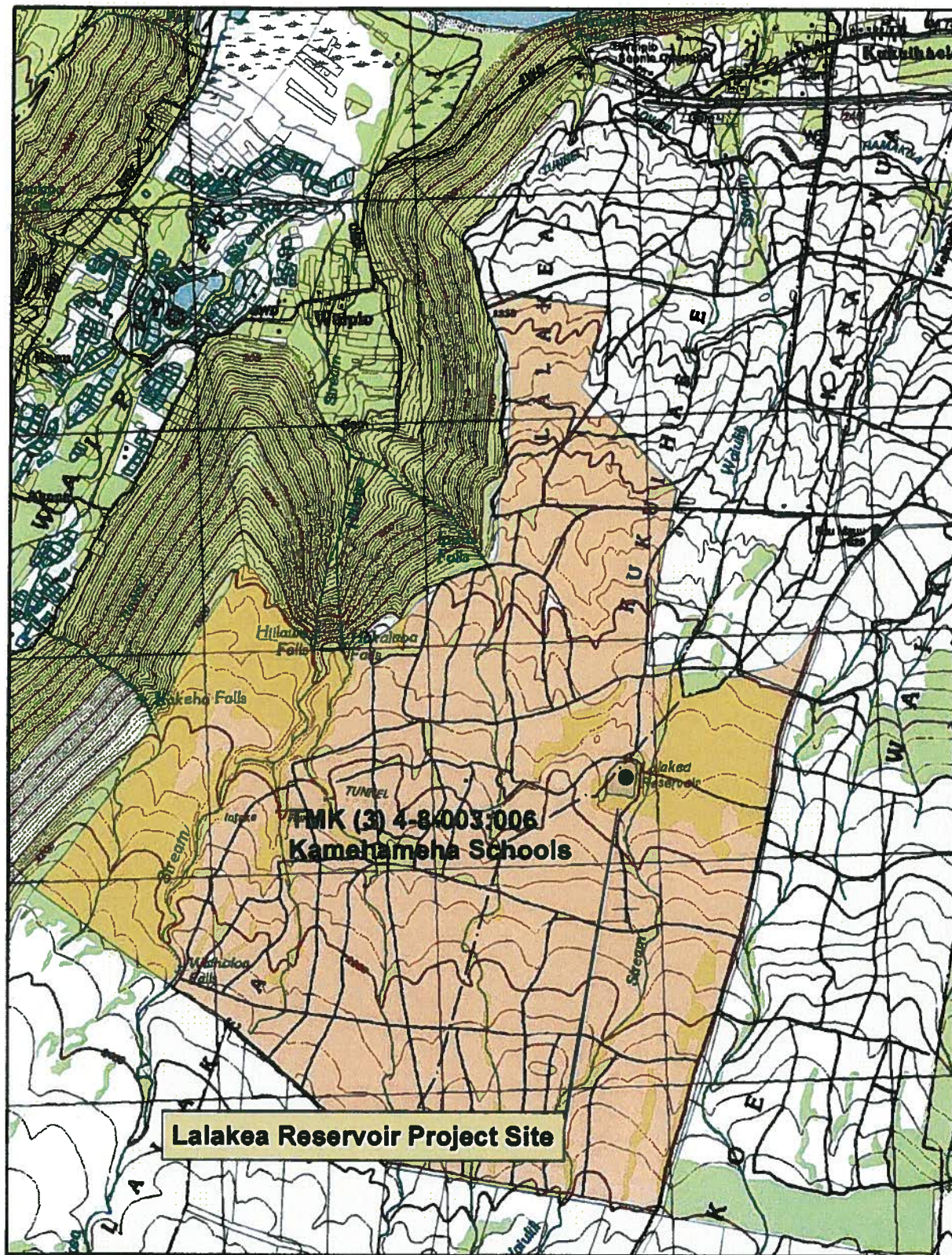
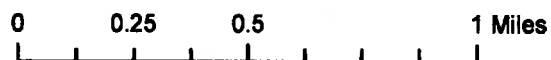


Fig. 1-1: General Site Location



Map 2 TMK Map



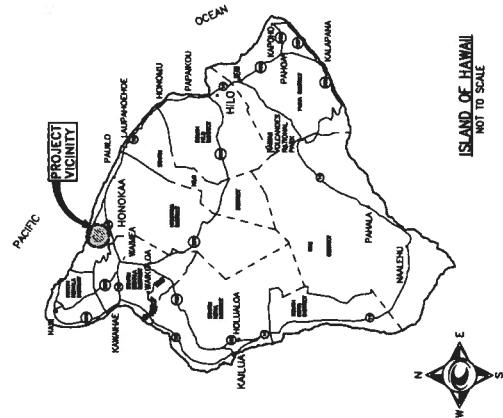
LĀĀKEA RESERVOIR
• DAM DECOMMISSION •

HAMAKUA, ISLAND OF HAWAII
TMK: (3) 4-8-003:006

 **oceanit**
828 FORT STREET MALL, SUITE 6
HONOLULU, HAWAII 96813

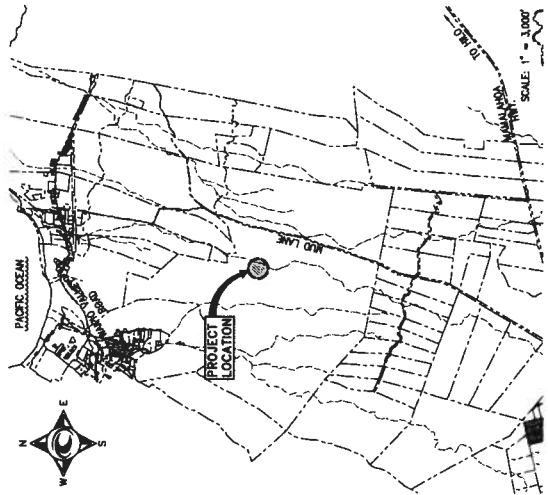
KAMEHAMEHA SCHOOLS
567 SOUTH KING STREET
HONOLULU, HAWAII 96813

VICINITY MAP



ISLAND OF HAWAII
NOT TO SCALE

LOCATION MAP



SCALE: 1" = 3,000'

SHEET INDEX

DRAWING NUMBER	SHEET NUMBER	DESCRIPTION OF DRAWINGS
T-1	1	TITLE SHEET
T-2	2	GENERAL NOTES
EG-1	3	SITE PLAN
EC-1	4	EXISTING CONDITIONS
C-1	5	GENERAL SITE PLAN
C-2	6	BREACH PLAN & PROFILE
C-3	7	GRADING PLAN
C-4	8	SECTIONS
C-5	9	FLUME MODIFICATION DETAIL

APPROVALS

12/16/07 DATE
Glen Grimes
DIRECTOR, DEPARTMENT OF PUBLIC WORKS
COUNTY OF NADAV
(FOR GRADING PURPOSES ONLY)

LEADS FULL

APPROVED BY:

FORM NO. 10-1
T-1
REV. 10-1-78

Exhibit 3

LATAKEA RESERVOIR DAM DECOMMISSION (PRELIMINARY)

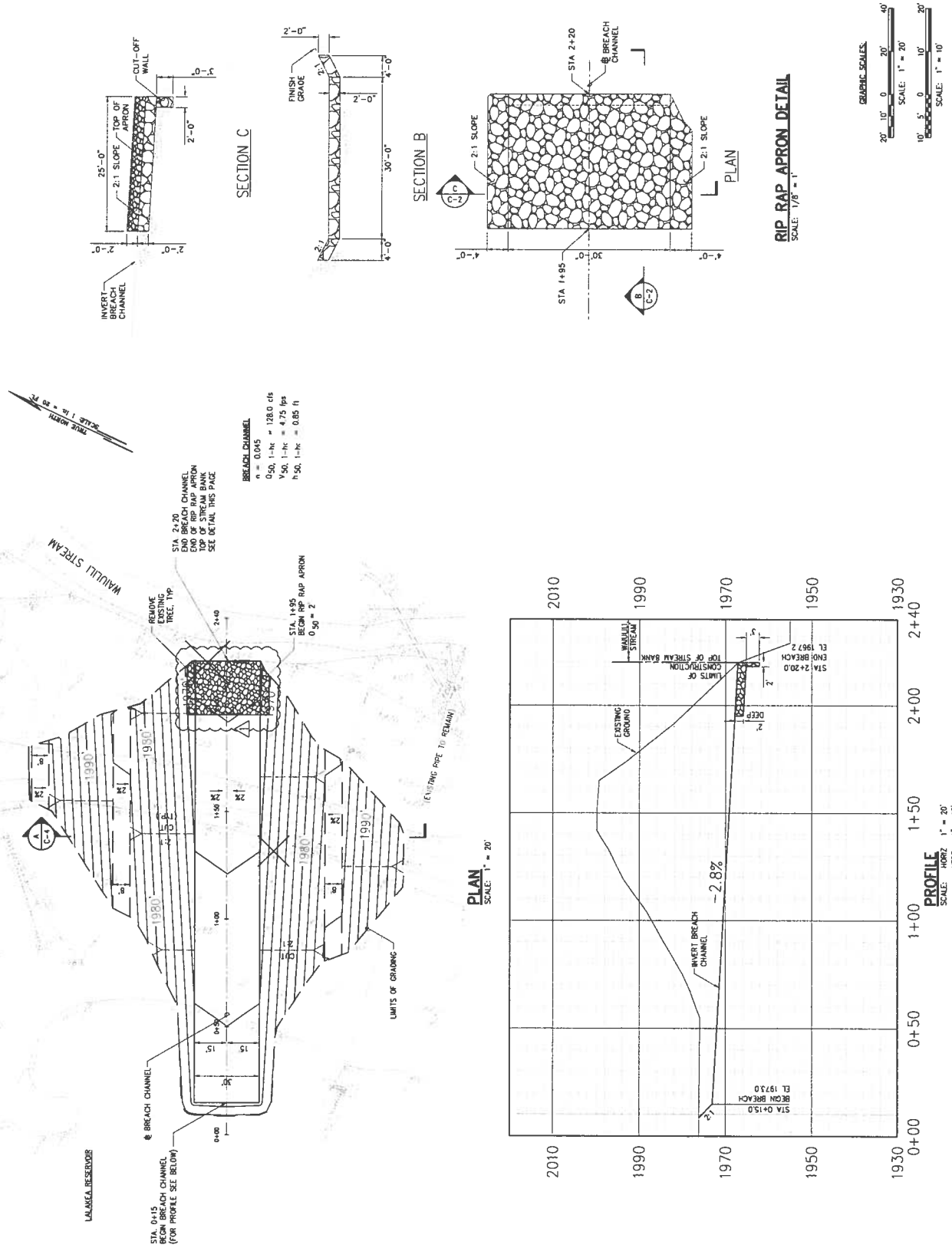


KAMEHAMEHA SCHOOLS
557 South King Street
Honolulu, Hawaii 96813

**LĀĀKEA
RESERVOIR DAM
DECOMMISSION**

THANK
CD 4-4-2008

THANK
YOU





"Durkee, Dean B."
<ddurkee@GFNET.com>
07/31/2008 07:11 AM

To <Denise.M.Manuel@hawaii.gov>
cc "Raza, Syed M." <sraza@GFNET.com>
bcc
Subject Lalakea

Denise,
I have attached the Comment Resolution form for Lalakea. All of the issues have been addressed. We included a couple of recommendations in the Resolution column for your consideration. Please let me know if you have any questions.
Thanks,
-Dean

Dean B. Durkee, Ph.D., P.E.

Gannett Fleming, Inc.
4722 N. 24th Street
Phoenix, AZ 85016
602.553.8817
www.gfnet.com



Response - DLNR_Lalakea Comments - Resolution Gannett Fleming 7-31-08.doc

LINDA LINGLE
GOVERNOR OF HAWAII



**STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES**

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

LAURA H. THIELEN
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

RUSSELL V. TSUJI
FIRST DEPUTY

KEN C. KAWAHARA
DEPUTY DIRECTOR - WATER

AQUATIC RESOURCES
BOATING AND OCEAN RECREATION
BUREAU OF CONVEYANCES
COMMISSION ON WATER RESOURCE MANAGEMENT
CONSERVATION AND COASTAL LANDS
CONSERVATION AND RESOURCES ENFORCEMENT
ENGINEERING

FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
KAHOOLAWE ISLAND RESERVE COMMISSION
LAND
STATE PARKS

AUG 12 2008

Mr. T. Kaeo Duarte
Kamehameha Schools
Land Assets Division
567 S. King Street, Suite 200
Honolulu, Hawaii 96813

Dear Mr. Duarte:

**DAM SAFETY CONSTRUCTION/ALTERATION PERMIT NO. 31
LALAKEA RESERVOIR (HI00026)
DAM BREACH & REMOVAL, KUKUIHAELE, HAWAII
PROPOSED PERMIT APPROVAL CONDITIONS**

The Department of Land and Natural Resources (Department) has reviewed your permit application for the above noted project.

A portion of the project includes the permanent closure of the tunnel providing inflow water to the reservoir. During the review process, the owner representative informed the Department that the tunnel closure construction will not be included in this portion of the construction. The Department also understands that the water from tunnel is providing emergency irrigation water in conjunction with the State of Hawaii, Department of Agriculture for areas that were affected by the October 15, 2006, earthquake.

As the tunnel closure portion of the project will not be included in this phase of the construction and it is unknown when the closure would be completed, the owner shall resubmit a new Dam Safety Construction/Alteration Permit Application at the time that the tunnel closure phase is ready for construction. Upon receipt of the new application, the Department will evaluate if the project can be included under the original permit.

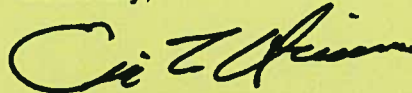
The Dam Safety program will be recommending that the Board of Land and Natural Resources (BLNR) approve the permit subject to the following special conditions and the attached General Conditions:

1. As the tunnel closure portion of the project will not be completed in this phase of construction, the owner shall provide an Operations and Maintenance Plan upon

completion of construction to ensure that uncontrolled flow from the tunnel does not occur after the dam is breached. Regular inspection of the operation is expected until such time as the tunnel inflow is sealed.

Please respond by August 22, 2008, if you have any concerns to these conditions. If the conditions are acceptable, we would make recommendation for approval at the next BLNR board meeting. If you have any questions, please feel free to contact Denise Manuel of my staff at Ph. (808) 587-0246.

Sincerely,

A handwritten signature in black ink, appearing to read "Eric T. Hirano", written in a cursive style.

ERIC T. HIRANO
Chief Engineer

Enclosure

c: Mr. Derrick Elfalan, Oceanit

DAM SAFETY PERMIT GENERAL CONDITIONS

APPROVAL OF PLANS AND SPECIFICATIONS FOR DAM AND RESERVOIR CONSTRUCTION, ENLARGEMENT, REPAIR, ALTERATION OR REMOVAL

The following General Conditions shall be adhered to for all Dam Safety permits unless otherwise authorized in writing.

1. Construction work shall commence within five years of the date of the approved application.
2. A licensed engineer in the State of Hawaii shall be in charge of the inspection of the construction.
3. One set of final plans and specifications with the County approval (signature) shall be submitted to the Department prior to the start of the work.
4. The Department shall be notified five (5) calendar days prior to the commencement of the construction, and a construction schedule shall be provided, which includes the notice to proceed date and estimated project duration.
5. Changes and/or modifications to the plans shall be sent to the Engineering Division in the form of shop drawings and/or plans that are approved and stamped by a licensed engineer.
6. The owner shall prepare a construction emergency response plan to address personnel responses should an emergency situation arise during the construction.
7. The owner or its representative shall notify the Department fifteen (15) calendar days in advance to the final construction inspection.
8. Within fifteen (15) calendar days of completing the project, the owner or its representative shall provide the Department with a confirmation letter of compliance, signed and stamped by the construction engineer, indicating that the construction was completed in accordance to approved plans and specifications including any field changes. The construction engineer shall submit the as-built drawings within 180 calendar days of the submittal of the confirmation letter of compliance.
9. The applicant/owner shall submit one copy each of the Operations Manual and the Emergency Action Plan for the facility upon completion of the project as applicable.
10. For dams and reservoirs that have been drained or for new construction, the applicant/owner shall inform the Department at least fifteen (15) calendar days in advance before filling the reservoir. The applicant/owner shall follow a filling plan and provide documentation of monitoring during the filling operation.
11. The applicant/owner shall utilize appropriate erosion control best management practice measures during construction to minimize turbidity (such as scheduling of work during periods of low stream flow) and prevent debris and construction materials, including cement, petroleum products, and other pollutants from enter the waters of the State. Construction related water and debris should be properly disposed of in a legal and environmentally safe manner.
12. The applicant/owner shall comply with all applicable Federal, State, and County regulations.



Thomas Kaeo Duarte
<kaduarte@ksbe.edu>
08/19/2008 11:06 AM

To <Denise.M.Manuel@hawaii.gov>,
<Edwin.Y.Matsuda@hawaii.gov>
cc
bcc
Subject Lalakea Decommission Permit

Aloha Denise and Edwin -

I have received your letter regarding Permit No. 31 for Lalakea Reservoir. We have no problem with your conditions and have no further comments. We look forward to finishing this project. When would it go before the Board?...I want to make sure I keep the date clear.

Mahalo,
Kaeo